UNITED STATES PATENT AND TRADEMARK OFFICE

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10/628,265	07/29/2003	Claire-Sabine Randriamasy	Q76542	4726

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _21 June 2007_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _40_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-9, 12-28 and 31-40_ is/are rejected.

7)☒ Claim(s) _10, 11, 29 and 30_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _21 June 2007_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Response to Arguments

1.   Applicant's arguments filed June 21, 2007 have been fully considered but they are not persuasive. The applicant's argument stated in page 17, starting in line 17 "calculating possible paths between a departure node and an arrival node, and assigning each possible path a value of interest allowing for an ideal solution". Izmailov et al. shows that given a graph G, there are two possible paths selected, one is the ideal shortest path, and the other is the available shortest path. The available shortest path is the shortest path in the presence of bandwidth reservations (r) of other triplets. The bandwidth reservation variable r can be interpreted as the assigned value of interest (see paragraph 0058 lines 1-10, and paragraph 0059, lines 1-10).

2.   Applicant's arguments, see page 21, filed June 21, 2007, with respect to the rejection(s) of claim(s) 14-16 and 33-35 under 103 rejection have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Roginsky et al. (Pat No.: 6034946).

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 8, 9, 12, 13, 17-23, 27, 28, 31, 32, 36-40 are rejected under 35

U.S.C. 102(e) as being anticipated by Izmailov et al. (Pub No.: 2003/0058797).

In claims 1 and 20, Izmailov et al. disclosed the method of determining data

routing paths in a communication network including a multiplicity of nodes (Nn), which

method is characterized in that it includes the following steps: a) ensuring that at least a

portion of the multiplicity of nodes (Nn) are connected (see Fig. 7), b) for the nodes of

the portion, calculating possible paths (r*) between a departure node (Ns) and an arrival

node (Nt), allowing for at least two chosen criteria, and then deducing an ideal solution

(Z()) from performances (Z(r*)) of the possible paths (r*) based on the criteria (see

column 0039, lines 11-30), c) assigning each possible path (r*) a value of interest (U(r))

allowing for the ideal solution (Z()), and then classifying the possible paths allowing for

their respective values of interest (see column 0055, and see Table 1, see paragraph

0058 lines 1-10, and paragraph 0059, lines 1-10), and d) selecting from the classified

possible paths the k best classified paths, in order to route data via one of the k paths

(see column 0039, lines 1-10), as recited in claims 1 and 20. As disclosed in the

reference a method to calculate a optimal path. It selects a non-selected class from a

plurality of differentiated service classes (see Table 1 in paragraph 0055) that have

criteria stated in the Performance Bounds column. Therefore, it shows that given a

graph G, there are two possible paths selected, one is the ideal shortest path, and the other is the available shortest path. The available shortest path is the shortest path in the presence of bandwidth reservations (r) of other triplets. The bandwidth reservation variable r can be interpreted as the assigned value of interest

Regarding to claims 2 and 21, characterized in that step a) begins by determining from the multiplicity of nodes (Nn) all the pairs of nodes (see Fig. 7) that can establish between them an oriented link each supporting at least one chosen local constraint, after which it is ensured that all the nodes of the pairs are connected (see column 0071, lines 1-20). As disclosed in the reference, all paths must meet the bandwidth availability requirements, and to calculate the shortest path and a number of hops in the shortest path.

Regarding to claims 3 and 22, characterized in that at the end of step b) there are retained from the possible paths (r*) those that each satisfy at least one chosen global constraint so that in step c) values of interest (U(r)) are assigned to the retained possible paths (r*) (see column 0039, lines 11-30). As disclosed in the reference, all paths must meet the bandwidth availability requirements, and to calculate the shortest path and a number of hops in the shortest path.

Regarding to claims 4 and 23, characterized in that at least one of the criteria is of the non-additive type (see column 0039, lines 11-30). As mentioned in the specification, non-additive type can be a bandwidth requirement.

Regarding to claims 8 and 27, characterized in that in step b) representative values (Z(r)) of its "performance" are determined for each path with respect to each of

the chosen criteria and a path (r) for which the performance values (Z(r)) are "non-

dominated" is qualified as a possible path (r*) (see column 0039, lines 11-30). As

discussed in the reference, all the pre-selected paths are qualified for certain criteria.

Regarding to claims 9 and 28, characterized in that in step b) the best

performance value (Z*(r)) observed over the possible paths, referred to as the "optimum

value", is determined for each criterion and the ideal solution is then constructed in the

form of a multiplet of components constituted of the various optimum values thus

determined (see column 0039, lines 11-30). In the reference, Backtracking algorithm is

used to determine an optimal path. Backtracking algorithm using refinement technique

which computes using relevant values of the constraints in the system to find the

optimal path.

Regarding to claims 12 and 31, characterized in that the local and/or global

constraints are selected from a group comprising at least the minimum bandwidth

required, the maximum length of the path, the maximum duration of the path, at least

one prohibited link, the maximum number of hops on the path, and a path color

restriction (see column 0039, lines 11-30).

Regarding to claims 13 and 32, characterized in that the criteria are selected

from a group comprising at least the available bandwidth (C2), the number of hops on

the path (C3), and the duration of the path (C1) (see column 0039, lines 11-30).

Regarding to claims 17 and 36, characterized in that the criteria are chosen as a

function of the type of service required (see column 0053, lines 1-10 and see Table 1).

Regarding to claims 18 and 37, characterized in that the chosen criteria are weighted as a function of their importance in the light of management information (see column 0039, lines 1-30 and see Table 1). As shown in the Table 1, the criteria are used corresponding to the certain application used.

Regarding to claims 19 and 38, characterized in that the constraints and their associated values are chosen as a function of the quality of service required (see column 0053, lines 1-11).

Regarding to claim 39, the method is in IP communication networks (see column 0071, lines 1-9).

Regarding to claim 40, the method with link state routing protocols supporting TE-LSA traffic management (see column 0028, lines 1-7). As in the reference, QOSPF protocol is used.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness

under 35 U.S.C. 103(a) are summarized as follows:

 1.   Determining the scope and contents of the prior art.
 2.   Ascertaining the differences between the prior art and the claims at issue.
 3.   Resolving the level of ordinary skill in the pertinent art.
 4.   Considering objective evidence present in the application indicating
       obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

Claims 5, 6, 24 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable

over Izmailov et al. (Pub No.: 2003/0058797), in view of Gunluk (Pat No.: 7023806).

For claims 6 and 25, Izmailov et al. disclosed the methods of characterized in

that in step b), during the procedure of eliminating the partial paths, there are retained

solutions that are "weakly non-dominated" on the non-additive criterion (see column

0039, lines 11-30). As disclosed in the reference, Backstracking algorithm is used to

eliminate certain solutions that do not meet the criteria, and moreover, it retains certain

alternative solutions.

However, Izmailov et al. did not disclose the methods of integrates a trace storing a route corresponding to a partial path, in order to detect and prevent cycles in the paths under construction.

Gunluk from the same or similar fields of endeavor teaches the use of integrates a trace storing a route corresponding to a partial path, in order to detect and prevent cycles in the paths under construction (see column 9, lines 43-60). The motivation for using the method as taught by Gunluk in the network of Izmailov et al. being that it stores alternative paths in the memory.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izmailov et al. (Pub No.: 2003/0058797), in view of Khotimsky et al. (Pat No.: 6646989).

For claims 7 and 26, Izmailov et al. disclosed all the subject matter of the claimed invention with the exception of characterized in that connectivity is verified by a mechanism of propagation from the departure node (Ns) to all the other nodes (Nn) of the multiplicity of nodes, so that each node (Nn) is visited.

Khotimsky et al. from the same or similar fields of endeavor teaches the method

of characterized in that connectivity is verified by a mechanism of propagation from the

departure node (Ns) to all the other nodes (Nn) of the multiplicity of nodes, so that each

node (Nn) is visited (see column 7, lines 27-45). The motivation for using the method as

taught by Khotimsky et al. in the network of Izmailov et al. being that it ensure all nodes

are accessible when finding the possible paths.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-16 and 33-35 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Izmailov et al. (Pub No.: 2003/0058797), in view of Roginsky et al.

(Pat No.: 6034946).

For claims 15, 16, 34 and 35, Izmailov et al. disclosed all the subject matter of

the claimed invention with the exception of of characterized in that in step b) the

criterion relating to the duration of the path (C1) is impacted by a penalty, as recited in

claims 15, and 34. Characterized in that the penalty applies to the administration cost

(CA) of the path, as recited in claims 16 and 35. The method of characterized in that the

chosen criteria used in step b) comprise the available bandwidth (C2) and the duration of the path (C1), as recited in claims 14, and 33.

Roginsky et al. from the same of similar fields of endeavor teaches the method of characterized in that the chosen criteria used in step b) comprise the duration of the path (C1) (see column 11, lines 60-67, and column 12 lines 24-40). The motivation for using the methods as taught by Roginsky et al. in the network of Izmailov et al. being that the duration of a path can greatly affect the result of optimal path determination.

Roginsky et al. also teaches the methods of characterized in that in step b) the criterion relating to the duration of the path (C1) is impacted by a penalty (see column 11, lines 60-67, and column 12 lines 24-40), as recited in claims 15, and 34. The penalty is the cost effected by the duration of a path. The method of characterized in that the penalty applies to the administration cost (CA) of the path (see column 11, lines 60-67, and column 12 lines 24-40), as recited in claims 16 and 35. The motivation for using the methods as taught by Roginsky et al. in the network of Izmailov et al. being that the least transmission cost of a path can greatly affect the result of optimal path determination.

Allowable Subject Matter

7.   Claims 10, 11, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kan Yuen whose telephone number is 571-270-2413. The examiner can normally be reached on Monday-Friday 10:00a.m-3:00p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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RICKY Q. NGO
SUPERVISORY PATENT EXAMINER